



March 27, 2017

The Honorable Robert Latta
Chairman
Committee on Energy and Commerce
Subcommittee on Digital Commerce and
Consumer Protection
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Jan Schakowsky
Ranking Member
Committee on Energy and Commerce
Subcommittee on Digital Commerce and
Consumer Protection
2125 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Latta and Ranking Member Schakowsky:

As you prepare for tomorrow's hearing, "Self-Driving Cars: Levels of Automation," Advocates for Highway and Auto Safety (Advocates) would like to submit our position on the safety implications presented by autonomous vehicles (AVs). Advocates is a coalition of public health, safety, and consumer organizations, insurers and insurance agents that promotes highway and auto safety through the adoption of safety laws, policies and regulations. We respectfully request that this letter and the comments Advocates submitted to the public docket in response to the National Highway Traffic Safety Administration (NHTSA) "Federal Automated Vehicles Policy" (AV Guidelines) Notice and Request for Comments (81 Federal Register 65703, September 23, 2016, DOT Docket No. NHTSA-2016-0090), which are attached, be included in the hearing record.

Advocates Has Consistently Pushed for Advanced Technologies in Vehicles to Save Lives and Prevent Injuries. With Fatalities on the Rise, Action is Needed.

Advocates has been a long-standing leading supporter of technological solutions to advance safety, reduce crashes, save lives, mitigate injuries and contain crash costs. These efforts include promoting requirements for airbags, electronic stability control, anti-lock brakes, rearview cameras and other important safety features as standard equipment on cars, trucks and motorcoaches. In fact, NHTSA has estimated that since 1960, over 600,000 lives have been saved by motor vehicle safety technologies.¹ Autonomous vehicle technology presents a similar possibility of accomplishing significant reductions in preventable motor vehicle deaths and injuries at a time when fatalities are on the rise.

According to NHTSA, 2015 experienced the largest percentage increase of motor vehicle deaths in nearly fifty years.² More than 35,000 people were killed on our nation's roads, representing a 7.2-percent upturn.³ Preliminary information for the first half of 2016 appears to be even worse, indicating an 8 percent rise in fatalities compared to the same time period in 2015.⁴ Advocates is optimistic that AV technologies can help reverse this recent trend.

¹ Lives Saved by Vehicle Safety Technologies and Associated Federal Motor Vehicle Safety Standards, 1960 to 2012, DOT HS 812 069 (NHTSA, 2015); See also, NHTSA AV Policy, *Executive Summary*, p. 5 endnote 1.

² National Center for Statistics and Analysis, *2015 motor vehicle crashes: Overview*, Report No. DOT HS 812 318, National Highway Traffic Safety Administration (Aug. 2016).

³ *Id.*

⁴ National Center for Statistics and Analysis, *Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (Jan-Jun) of 2016*, Report No. DOT HS 812 332 (Oct. 2016).

Yet, some experts forecast that 15-20 years may transpire before AVs comprise a major portion of the vehicles on public roads. In the interim it is unacceptable to complacently allow more than 500,000 people to be killed and more than 36 million to be injured in crashes. In the short term, we urge NHTSA to use its authority to require that available and effective crash avoidance technologies be required as standard equipment on all motor vehicles. These include automatic emergency braking (AEB) and lane departure warning systems for trucks, buses and cars. To encourage these advances, Advocates, along with other safety groups and families of victims and survivors of crashes, filed a Petition for Rulemaking with NHTSA in 2015 requesting the agency issue a rule to require automatic braking systems to prevent frontal crashes involving large trucks. The agency granted the petition and Advocates urges NHTSA to commence rulemaking this year, particularly because of the urgency in addressing the unacceptable and dramatic increases in truck crash deaths these past five years.

Semi-Autonomous Vehicles that Share Control with the Human Driver Pose Serious Safety Challenges.

Regarding the specific focus of the Subcommittee's hearing, the levels of autonomous operation of AVs, the Society of Automotive Engineers (SAE) and NHTSA in its AV policy⁵ have adopted a range of levels, 1 through 5. Levels 1 through 3 involve some form of safety-oriented technology or AV system that may only alert the driver by providing a warning, assist the driver in taking evasive action, control a particular safety system in order to prevent a crash, or operate the vehicle in certain circumstances while the driver is supposed to monitor the vehicle. These three levels represent varying degrees of reliance on independent automated technology systems but can also involve shared control of the vehicle by the driver and the AV operating system at different points in a trip. At each level of autonomous or semi-autonomous operation through level 3 the driver must remain completely engaged in the driving task. The driver must remain alert, monitor the vehicle operation and driving task, and either maintain control of the operation of the vehicle or be prepared to take control of vehicle operation (re-engage) in the event the AV system fails to function properly or cannot respond (shuts off) under the circumstances prevailing at the time. This shared control poses serious safety challenges as drivers may become overconfident and allow themselves to be distracted and/or lulled into a false sense of security by the AV system.

An example of the consequences that can occur when an AV system is not properly vetted and tested was the May 2016 crash in Florida of a Tesla Model S using the Autopilot AV system that resulted in the death of the vehicle owner. First, while the Autopilot system was designed to have the driver constantly monitor the operation of the vehicle, the AV system method for maintaining driver engagement was insufficient. Reminders to the driver to keep his hands on the steering wheel were inadequate and too far apart in time sequence to ensure driver re-engagement during a critical safety event. Second, the vehicle visual sensors for the AEB system did not identify that a large truck had crossed the path of the Tesla and presented an immediate danger. The radar may have detected the truck but dismissed it. The conflicting inputs from the camera and radar sensors did not trigger any safety action by the Autopilot AV system, such as switching off the vehicle cruise control or applying the AEB system. Despite the conflict in sensor information, and the lack of response by the driver to any driver engagement warnings, the autopilot remained engaged and drove the vehicle under the truck killing the driver. This example of a shared responsibility for vehicle operation by the driver and the AV system, and the hand-off that needs to occur between the AV system and the driver, clearly show that Level 2/3 AV systems present a particularly high degree of safety risk to the public. This is the reason adequate testing of the AV operating system is essential in order to ensure that drivers

⁵ The NHTSA AV policy identifies levels 3-5 as highly autonomous vehicle (HAV) operation.

remain engaged in the driving task and that the transition from autonomous operation to driver re-engagement works perfectly every time.

Fully Autonomous Vehicles Present Unique Safety Concerns.

AV operation levels 4 and 5, which represent fully autonomous operation controlled by the AV system, present a different set of safety concerns. Level 4 and 5 vehicles must be able to complete a trip entirely based on AV system control, without driver input. To do so, the AV system must undergo rigorous and thorough testing to ensure it is capable of operating flawlessly. In the event of a mechanical or software problem, defect or failure, the AV system must be able to put the vehicle in a safe mode that takes it out of harm's way.

A Functional Safety Approach is Needed to Provide the Framework for the Design, Development, and Deployment of Autonomous Vehicle Technology.

Advocates' comments to the docket on the AV Guidelines urged NHTSA to require a functional safety process for new AV technologies which are rapidly entering the marketplace. The command and control software of these vehicles is not addressed by current Federal Motor Vehicle Safety Standards (FMVSS). Furthermore, it is expected that there will be efforts by industry to seek and obtain exemptions for AVs from some or all of the existing FMVSS. While we know there will be crashes, deaths and injuries during the transition between old and new cars, human error should not be replaced with computer error. Predictable problems and flaws that pose unreasonable risks to public safety before these vehicles are sold to the public and used on public roads should be eliminated, and this can be achieved with a mandatory functional safety process.

Additionally, cybersecurity is an important aspect of AV development which must be addressed as part of functional safety. NHTSA should identify problem areas and require specific responses from manufacturers as to how those are being addressed. Problem areas could include subjects such as GPS signal loss or degradation, spoofing, and off-line and real time hacking of single vehicles or fleets of vehicles. As with all other AV performance aspects, the sharing of data in terms of cybersecurity will improve overall safety and ensure that all vehicles are afforded the same level of security. Data and information about known flaws or problems must be shared among manufacturers and with NHTSA and the public to ensure solutions to safety problems are readily identified and remedied. The potential risk of a single software error, or malevolent computer hack impacting hundreds or thousands of AVs, perhaps whole model runs, makes strong cybersecurity protections a crucial and essential element of AV design.

The Development of Autonomous Vehicles Must Be Transparent or Public Confidence in the Technology Will Suffer.

The development and deployment of AVs as well as NHTSA's role in regulating this technology must be open and transparent. All communications and responses between the agency and a manufacturer as it relates to any issues involving AVs must be made available for public review and scholarly research. All data generated from the testing and deployment of AVs, except for trade secrets and private individual information must also be made public. Lack of transparency will severely undermine the public's confidence in this new technology and inhibit its widespread adoption.

In fact, a recent national survey commissioned by Kelley Blue Book found that a large portion of the public is hesitant to accept AVs. Fifty-one percent of respondents replied that they prefer to have full control of their vehicle, even if it's not as safe for other drivers. Additionally,

awareness of the higher levels of vehicle autonomy is limited, with 6 out of 10 people saying they know little or nothing about AVs. For half of the respondents, the perception of safety and personal comfort with autonomous technology diminished as the level of autonomy increased. In fact 80 percent believed that people should always have the option to drive themselves, and nearly one in three respondents said they would never buy a level 5 vehicle.⁶

Advocates urges the agency to issue appropriate safety standards for the AV technologies and we hope that the industries involved will support this position. Having some basic rules of the road that everyone follows, drivers as well as manufacturers, will benefit the auto and tech industries as well as public safety. If a lack of transparency or malfunctioning technology leading to crashes, deaths and injuries disrupts consumer confidence, it will set back all of our efforts to advance these lifesaving technologies.

Conclusion

In response to concerns about the death and injury toll on our highways, Congress passed the National Traffic and Motor Vehicle Safety Act of 1966.⁷ The law required the federal government to establish the FMVSS to protect the public against “unreasonable risk of accidents occurring as a result of the design, construction or performance of motor vehicles.”⁸ While cars have changed dramatically over the last half century and will continue to do so in the future, the underlying premise of this prescient law has not. Technological advances, including AVs, offer the promise of achieving much-needed safety improvements. However, it is critically important that safety and transparency are at the forefront of the process.

Thank you for your time and consideration of our safety position on this emerging issue. Please do not hesitate to contact us if we can provide any additional assistance to the Subcommittee.

Sincerely,



Jacqueline S. Gillan
President



Catherine Chase
Vice President of Governmental Affairs

cc: Members of the Subcommittee on Digital Commerce and Consumer Protection

⁶ 2016 Kelley Blue Book Future Autonomous Vehicle Driver Study, www.kbb.com.

⁷ Pub. L. 89-563 (Sept. 9, 1966).

⁸ Title 49, U.S.C. Sec. 30102.